

REMARKS

Claims 1-27 are pending in the application. In view of the remarks that follow, Applicants respectfully request reconsideration.

Transfer of Responsibility

Applicants wish to advise the Examiner that, since issuance of the outstanding Office Action, responsibility for this application has been transferred from the law firm of Dicke, Billig & Czaja, PLLC to the law firm of Haynes and Boone LLP. A revocation of the existing power of attorney and a new power of attorney will be submitted in due course. In the meantime, the undersigned is acting under the provisions of 37 C.F.R. §1.34.

Independent Claim 1

Independent Claim 1 stands rejected under 35 U.S.C. §103 as obvious in view of a proposed combination of teachings from Curtiss U.S. patent No. 4,400,655 and Gray U.S. Patent No. 4,025,960. This ground of rejection is respectfully traversed. In this regard, the PTO specifies in MPEP §2142 that:

The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness.

Applicants respectfully submit that Curtiss and Gray fail to establish a *prima facie* case of obviousness under §103 with respect to Claim 1, for mutually exclusive reasons that are discussed separately below.

NONANALOGOUS ART CANNOT BE USED TO ESTABLISH OBVIOUSNESS

Only analogous prior art can be considered for the purpose of trying to establish a *prima facie* case of obviousness under 35 U.S.C. §103. In this regard, MPEP §2141.01(a) specifies that, for a reference to be "analogous" prior art that can be considered under §103, it must either

(1) be in the field of Applicants' endeavor or (2) be reasonably pertinent to the particular problem with which the inventor was concerned. The provisions of §2141.01(a) go on to explain that, although the PTO classification system carries a small amount of weight in determining what is relevant, the similarities and differences in structure and function carry far greater weight. In this regard, §2141.01(a) discusses a specific example, and states that:

The court also found the reference was not reasonably pertinent to the problem with which the inventor was concerned because a person having ordinary skill in the art would not reasonably have expected to solve the problem of dead volume in tanks for refined petroleum by considering a reference dealing with plugging underground formation anomalies.

With reference to page 1 of Applicant's specification, the field of Applicant's endeavor is "a variable reluctance machine operated as a generator". As also evident from page 1, the particular problem with which the present inventor was concerned is improving the control circuitry for a machine that is to be operated in a generating mode. In lines 9-10 on page 3, the Office Action expressly concedes that Curtiss "fails to disclose a method of operating a variable reluctance machine as a generator". Consequently, Curtiss is not within Applicant's field of endeavor, and this in turn means that Curtiss does not have any teachings that are reasonably pertinent to the particular problem with which the present inventor was concerned (because the problem is specific to Applicant's field of endeavor). Accordingly, it is respectfully submitted that Curtiss is not what the PTO considers to be "analogous" prior art, and Curtiss cannot properly be used in an attempt to establish a prima facie case of obviousness under §103 with respect to Applicants' claims. Consequently, the Examiner's burden of factually supporting a prima facie case of obviousness has not been met. For this reason alone, it is respectfully submitted that the pending §103 rejection must be withdrawn, and notice to that effect is respectfully requested.

CURTISS DOES NOT TEACH WHAT THE OFFICE ACTION SAYS IT DOES

In the paragraph that bridges pages 2-3, the Office Action asserts that Curtiss discloses most of what is recited in Applicants' Claim 1. Applicants respectfully disagree. In this paragraph, the Examiner has not actually written a description of what Curtiss discloses. Instead, what the Examiner has done is to copy selected language from Applicants' claims, and then arbitrarily insert a few reference numerals extracted from the drawings of Curtiss. However, some of the reference numerals do not correspond to the language copied from Applicants' claims.

As one example, Applicants' Claim 1 recites "creating a bias flux linking the at least one phase winding". Curtiss happens to use the phrase "flux bias" at 109 in Figure 1. The Office Action asserts that this "flux bias" 109 is the same as the "bias flux" recited in Applicants' Claim 1. But in Curtiss, 109 is merely a resistor that is shown in Figure 3, and the resistor 109 is not capable of generating any electromagnetic field or "flux", much less a flux that influences and serves as a bias with respect to any phase winding in the motor of Curtiss. Instead, the flux bias mentioned in Curtiss is merely an electrical signal that is an input to a feedback control circuit. Thus, the "flux bias" mentioned in Curtiss is not even remotely comparable to the "bias flux" recited in Applicants' Claim 1. Stated differently, and referring to Figure 2 of Curtiss, if a person skilled in the art were to focus on the phase windings 15 in the motor of Curtiss, the person would readily recognize that none of these windings are ever subject to any electromagnetic field or flux that could reasonably be considered to be a bias comparable to the bias flux disclosed and claimed in the present application. And if Curtiss has no bias flux at all, then there is clearly no bias flux coming from the resistor 109 of Curtiss.

As another example, the Office Action asserts that the amplifier 101 in Figure 3 of Curtiss influences the magnitude of a phase voltage in a phase winding of the motor, and in particular limits the phase voltage to a magnitude less than the magnitude otherwise induced in the phase winding by the bias flux. However, this is not even remotely what the amplifier 101 does. With reference to Figure 3 of Curtiss, and lines 54-56 in column 7, the amplifier 101 operates as a voltage divider and reduces the magnitude of an electrical signal that is applied through the resistor 103 to a summing point 104. Persons skilled in the art will readily recognize

that the amplifier 101 does not act to limit the magnitude of any phase voltage in any phase winding of the motor shown at 202 in Figure 1 of Curtiss.

As evident from these two examples, Curtiss does not teach everything that the Office Action says it does. It is therefore respectfully submitted that Curtiss fails to fulfill its intended role in the §103 rejection, and that the §103 rejection is thus defective and must be withdrawn.

THE PRIOR ART MUST TEACH ALL CLAIM LIMITATIONS UNDER §103

MPEP §2142 specifies with respect to §103 that:

To establish a *prima facie* case of obviousness . . . the prior art reference (or references when combined) must teach or suggest all the claim limitations. (Emphasis added).

The PTO considers this requirement to be important, as evidenced by the fact that this exact language appears not only in MPEP §2142, but also in other sections of the MPEP, including MPEP §706.02(j) and MPEP §2143. The Office Action asserts that Curtiss and Gray disclose all of the limitations in Applicants' Claim 1, but this assertion is respectfully traversed. As discussed above, the Office Action relies on Curtiss for certain teachings, but they are not actually present in Curtiss. For example, Curtiss does not disclose anything that is even remotely comparable to the limitation in Claim 1 of "a bias flux linking the at least one phase winding", nor does Curtiss disclose anything even remotely comparable to the limitation in Claim 1 of "limiting the phase voltage to a magnitude below that otherwise induced in the phase winding by the bias flux". As to Gray, the rejection relies on Gray for other teachings. Consequently, even when Curtiss and Gray are considered together, they fail to satisfy the requirement of MPEP §2142 that their combined teachings must collectively "teach or suggest all the claim limitations" (emphasis added). Therefore, for this independent reason alone, it is respectfully submitted that Claim 1 is not rendered obvious under §103 by Curtiss and Gray, and notice to that effect is respectfully requested.

A PROPOSED MODIFICATION CANNOT CHANGE A PRINCIPLE OF OPERATION

With respect to the analysis of obviousness under §103, MPEP §2143.01 specifies that, where an examiner proposes a modification to a reference:

THE PROPOSED MODIFICATION CANNOT CHANGE THE PRINCIPLE OF OPERATION OF A REFERENCE

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious.

In the present situation, and as discussed above, Curtiss discloses a motor that in particular is an induction motor, and also discloses a control circuit that is specifically configured to operate an induction motor. In lines 9-14 on page 3, the Office Action asserts that it would be obvious to modify Curtiss to convert the induction motor into a variable reluctance machine, and to then convert the control circuit so that it operates the machine as a generator rather than as a motor. However, these changes would necessarily involve a major redesign of the Curtiss machine, and a major redesign is never an obvious expedient. Moreover, persons skilled in the art will readily recognize that this proposed modification would completely change the principle of operation of the Curtiss device, not only by changing both the machine and its control circuit from the principles of operation for an induction motor to the radically different principles of operation for a variable reluctance machine, but by also changing the machine and its control circuit from principles of operation associated with a motor to principles of operation associated with a generator. But as specified in MPEP §2143.01, "If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious". Accordingly, for this independent reason alone, it is respectfully submitted that the proposed modification of Curtiss would not be obvious under §103, and notice to that effect is respectfully requested.

PROPOSED MODIFICATION CANNOT DEFEAT INTENDED PURPOSE OF PRIOR ART

With respect to the analysis of obviousness under §103, MPEP §2143.01 specifies that, where an examiner proposes a modification to a reference:

THE PROPOSED MODIFICATION CANNOT RENDER THE PRIOR ART UNSATISFACTORY FOR ITS INTENDED PURPOSE

If [a] proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.

The present Office Action proposes a modification to the system of Curtiss that would convert it from its intended purpose of use as a motor to the entirely different purpose of use as a generator. In other words, the proposed modification would completely defeat the intended purpose of Curtiss. Consequently, as discussed in MPEP §2143.01, the proposed modification to Curtiss would not be obvious under §103. For this reason alone, it is respectfully submitted that the proposed modification to Curtiss would not be obvious under §103, and notice to that effect is respectfully requested.

THE PROPOSED MODIFICATION OF CURTISS IS NOT PROPER

There is yet another reason why the proposed modification of Curtiss is not proper under §103. In this regard, MPEP §2142 provides that:

To reach a proper determination under §103, the examiner must step backward in time and into the shoes worn by the hypothetical "person of ordinary skill in the art" when the invention was unknown and just before it was made. . . . Knowledge of applicant's disclosure must be put aside in reaching this

determination, . . . impermissible hindsight must be avoided, and the legal conclusion must be reached on the basis of the facts gleaned from the prior art.

In addition, the MPEP provides at § 2143.01 that:

The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. . . . Although a prior art device "may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion or motivation in the reference to do so". (Emphasis in original).

In the present situation, what the Examiner proposes is to combine an induction motor and a variable reluctance machine. Persons skilled in the art are very well aware that these two types of machine differ significantly in structure, function and fundamental principles of operation. Contrary to the assertions in the Office Action, a person skilled in the art would not even remotely consider attempting to combine these two radically different types of electrical machines, and certainly would not be motivated to undertake such a monumental task by the simplistic notion that air gaps and/or mmf drops might possibly be minimized. Consequently, the Office Action does not properly establish any motivation that is truly realistic (and in fact there may not actually be any motivation that would realistically cause a person of ordinary skill to attempt to combine two machines as thoroughly incompatible as an induction motor and a variable reluctance machine). The present §103 rejection of Claim 1 is therefore incomplete, because it fails to demonstrate the motivation that is required by the MPEP. In effect, therefore, the §103 rejection is based on hindsight of the present invention, rather than on motivation properly derived from what was known prior to the present invention. But as discussed above, MPEP §2142 emphasizes that "impermissible hindsight must be avoided". Accordingly, for this independent reason alone, it is respectfully submitted that the Office Action fails to properly

establish suitable motivation, and therefore fails to properly establish a prima facie case of obviousness under §103. Claim 1 is thus not rendered obvious under §103 by Curtiss and Gray, and notice to that effect is respectfully requested.

In view of the various different reasons that have been discussed separately above, it is respectfully submitted that the Curtiss and Gray do not establish a prima facie case of obviousness under §103 with respect to Applicants' Claim 1. Claim 1 is therefore believed to be allowable, and notice to that effect is respectfully requested.

Independent Claim 16

Independent Claim 16 stands rejected under 35 U.S.C. §103 on the ground that it would be obvious in view of a proposed combination of teachings from Curtiss and Gray. This ground of rejection is respectfully traversed. Claim 16 includes limitations reciting:

means for creating a bias flux linking the at least one phase winding; and means for limiting the magnitude of the phase voltage below that otherwise induced in the at least one phase winding by the bias flux.

The rationale offered in the Office Action for the rejection of Claim 16 is the same rationale offered for the rejection of Claim 1. Accordingly for the same basic reasons discussed above in association with Claim 1, it is respectfully submitted that Curtiss and Gray fail to properly establish a prima facie case of obviousness under §103 for the subject matter of Claim 16, and that Claim 16 is therefore not rendered obvious under §103 by Curtiss and Gray. Accordingly, Claim 16 is believed to be allowable, and notice to that effect is respectfully requested.

Dependent Claims

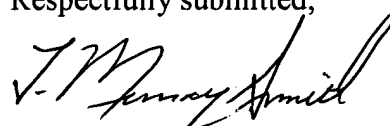
Claims 2-15 and Claims 17-27 respectively depend from Claim 1 and Claim 16, and are also believed to be distinct from the art of record, for example for the same reasons discussed above with respect to Claims 1 and 16.

Conclusion

Based on the foregoing, it is respectfully submitted that all of the pending claims are fully allowable, and favorable reconsideration of this application is therefore respectfully requested. If the Examiner believes that examination of the present application may be advanced in any way by a telephone conference, the Examiner is invited to telephone the undersigned attorney at 972-739-8647.

Although Applicants believe that no fee is due in association with the filing of this Amendment, the Commissioner is hereby authorized to charge any fee required by this paper, or to credit any overpayment, to Deposit Account No. 08-1394 of Haynes and Boone LLP.

Respectfully submitted,



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